

IN THE CLAIMS

Please amend the claims as follows:

Claim 1-22 (Canceled).

Claim 23 (Currently Amended): A hybrid fiber/coax network comprising:

~~a fiber optic link;~~

~~a plurality of coaxial cable links;~~

an optical distribution node including a transmitter and configured to be coupled to a plurality of coaxial cable links, the transmitter a plurality of coaxial cable links and including, a transmitter, the transmitter including,

~~a bandpass filter configured to receive a first analog signal from at least one of the plurality of coaxial cable links, and configured to selectively filter the first analog signal based on a predetermined frequency range,~~

~~an analog-to-digital converter configured to receive the first analog signal from the bandpass filter, and configured to convert the a first analog signal into a baseband digital signal,~~

a status monitoring unit configured to generate status data representing an operational status of the optical distribution node,

a multiplexer configured to convert the baseband digital signal into a serial data stream ~~format, and configured to multiplex the baseband digital signal serial data stream~~ and the status data to create a combined digital signal, and

an optical transmitter configured to transmit the combined digital signal via ~~the a fiber optic link; and~~

a head end configured to be coupled to the optical distribution node via the fiber optic link, configured to control or monitor an operation of the optical distribution node based on the status data, and including a receiver, the receiver including,

an optical receiver configured to receive the combined digital signal via the fiber optic link,

a demultiplexer configured to demultiplex the combined digital signal into the baseband digital signal and the status data, and

a node status monitoring unit configured to receive the status data from the demultiplexer, and

a digital-to-analog converter configured to convert the baseband digital signal into a second analog signal, the second analog signal being a reconstructed signal corresponding to the first analog signal.

Claim 24 (Canceled).

Claim 25 (Currently Amended): The hybrid fiber/coax network of claim 23, ~~further comprising:~~

~~a data providing unit disposed in the transmitter and configured to transmit to the multiplexer additional data that includes at least one of framing data and data for bit error rate link performance testing;~~

wherein the multiplexer is further configured to multiplex ~~the additional framing data;~~ the baseband digital signal, and the status data to create the combined digital signal.

Claim 26 (Currently Amended): The hybrid fiber/coax network of claim 25, ~~further comprising:~~

~~a data storage unit disposed in the receiver and configured to receive the additional data from the demultiplexer,~~

wherein the demultiplexer is further configured to demultiplex the combined digital signal into ~~the additional framing data, the baseband digital signal, and the status data.~~

Claim 27 (Previously Presented): The hybrid fiber/coax network of claim 23, wherein the analog-to-digital converter is configured convert the first analog signal to the baseband digital signal at least at 850 mega-bits second with a 10-bit data width.

Claim 28 (Currently Amended): The hybrid fiber/coax network of claim 23, wherein the optical transmitter ~~includes a 1310 nanometer digital laser~~ is configured to transmit the combined digital signal at a bit rate of up to approximately 1 gigabit per second.

Claim 29 (Currently Amended): A hybrid fiber/coax network comprising:
~~a fiber optic link;~~
~~a plurality of coaxial cable links of a predetermined quantity;~~
an optical distribution node configured to be coupled to the ~~a~~ plurality of coaxial cable links of a predetermined quantity and including a transmitter, the transmitter including,

~~a plurality of bandpass filters of the predetermined quantity, each configured to receive a first analog signal from a corresponding one of the plurality of coaxial cable links, and each configured to selectively filter the corresponding first analog signal based on a predetermined frequency range,~~

a plurality of analog-to-digital converters of the predetermined quantity, each configured to convert ~~the~~ a corresponding first analog signal into a corresponding baseband digital signal,

a plurality of first multiplexers of the predetermined quantity, each configured to convert the corresponding baseband digital signal into a serial data stream-format,

a status monitoring unit configured to generate status data representing an operational status of the optical distribution node,

a second multiplexer configured to multiplex the ~~baseband digital signals~~ serial data stream received from the plurality of first multiplexers ~~with and~~ the status data to create a combined digital signal, and

an optical transmitter configured to transmit the combined digital signal via ~~the a~~ fiber optic link; and

a head end configured to be coupled to the optical distribution node via the fiber optic link, configured to control or monitor an operation of the optical distribution node based on the status data, and including a receiver, the receiver including,

an optical receiver configured to receive the combined digital signal via the fiber optic link,

a first demultiplexer configured to demultiplex the combined digital signal into the baseband digital signals and the status data,

a plurality of second demultiplexers of the predetermined quantity, each configured to convert a corresponding one of the baseband digital signals received from the first demultiplexer into a non-serial data stream format,

a plurality of digital-to-analog converters of the predetermined quantity, each configured to convert the corresponding baseband digital signals into a corresponding second analog signal, each of the second analog signals being a reconstructed signal corresponding to a respective one of the first analog signals, and

a node status monitoring unit configured to receive the status data from the first demultiplexer.

Claim 30 (Canceled).

Claim 31 (Currently Amended): The hybrid fiber/coax network of claim 29, ~~further comprising:~~

~~a data providing unit disposed in the transmitter and configured to transmit to the multiplexer additional data that includes at least one of framing data and data for bit error rate link performance testing,~~

~~wherein the second multiplexer is further configured to multiplex the additional framing data, the baseband digital signals, and the status data to create the combined digital signal.~~

Claim 32 (Currently Amended): The hybrid fiber/coax network of claim 31, ~~further comprising:~~

~~a data storage unit disposed in the receiver and configured to receive the additional data from the first demultiplexer,~~

~~wherein the first demultiplexer is further configured to demultiplex the combined digital signal into the additional framing data, the baseband digital signals, and the status data.~~

Claim 33-36 (Canceled).

Claim 37 (Currently Amended): A method for handling data in a return path of a hybrid fiber coax network, comprising:

processing an analog signal, by an optical distribution node, including,

receiving a first analog signal from at least one of a plurality of coaxial cable links;
~~filtering the first analog signal based on a predetermined frequency range;~~
converting the first analog signal into a baseband digital signal;
generating status data representing an operational status of an optical distribution node of the hybrid fiber coax network;
~~_____ converting the baseband digital signal into a serial data stream format;~~
multiplexing the ~~baseband digital signal~~ serial data stream and the status data to create a combined digital signal; and
transmitting the combined digital signal via a fiber optic link from the optical distribution node; and
processing the combined digital signal, by a head end, including,
receiving the combined digital signal via the fiber optic link at ~~a~~ the head end of the hybrid fiber coax network;
demultiplexing the combined digital signal into the baseband digital signal and the status data;
storing the status data in a node status monitoring unit of the head end; and
converting the baseband digital signal into a second analog signal, the second analog signal being a reconstructed signal corresponding to the first analog signal; and
controlling or monitoring an operation of the optical distribution node based on the status data.

Claim 38 (Canceled).

Claim 39 (Currently Amended): The method of claim 37, ~~further comprising:~~

~~storing additional data in the optical distribution node, the additional data including at least one of framing data and data for bit error rate link performance testing,~~

wherein the multiplexing further includes multiplexing ~~the additional framing data,~~
~~the baseband digital signal, and the status data~~ to create the combined digital signal.

Claim 40 (Currently Amended): The method of claim 39, ~~further comprising:~~
~~storing the additional data in a data storage unit disposed in the head end,~~
wherein the demultiplexing further includes demultiplexing the combined digital signal into ~~the additional framing data, the baseband digital signal, and the status data.~~

Claim 41 (Canceled).

Claim 42 (Currently Amended): The method of claim 37, wherein the transmitting further includes transmitting the combined optical signal via the fiber optic link ~~with a 1310 nanometer digital laser configured to transmit the combined digital signal at a bit rate of up to approximately 1 gigabit~~ 5 gigabits per second.

Claim 43 (New): An optical distribution node configured for use in a hybrid fiber/coax network, the optical distribution node comprising:

a coaxial input configured to input an analog signal from at least one of a plurality of coaxial cable links;

an analog-to-digital converter configured to convert the analog signal into a baseband digital signal;

a status monitoring unit configured to generate status data representing an operational status of the optical distribution node;

a multiplexer configured to convert the baseband digital signal into a serial data stream, and configured to multiplex the serial data stream and the status data to create a combined digital signal; and

an optical transmitter configured to transmit the combined digital signal to a head end via a fiber optic link,

wherein the optical distribution node is configured to have an operation controlled or monitored by the head end based on the status data.

Claim 44 (New): The optical distribution node of claim 43, wherein the multiplexer is further configured to multiplex framing data to create the combined digital signal.

Claim 45 (New): The optical distribution node of claim 43, wherein the optical transmitter is configured to transmit the combined digital signal at a bit rate of up to approximately 1 gigabit per second.

Claim 46 (New): A head end configured for use in a hybrid fiber/coax network, the head end comprising:

an optical receiver configured to receive a combined digital signal from an optical distribution node via a fiber optic link, the combined digital signal including status data representing an operational status of the optical distribution node and a baseband digital signal constructed from a first analog signal input to the optical distribution node;

a demultiplexer configured to demultiplex the combined digital signal into the baseband digital signal and the status data;

a node status monitoring unit configured to receive the status data from the demultiplexer; and

a digital-to-analog converter configured to convert the baseband digital signal into a second analog signal, the second analog signal being a reconstructed signal corresponding to the first analog signal,

wherein the head end is configured to control or monitor an operation of the optical distribution node based on the status data.

Claim 47 (New): The head end of claim 46, wherein the demultiplexer is further configured to demultiplex the combined digital signal into framing data.

Claim 48 (New): The head end of claim 46, wherein the optical receiver is configured to receive the combined digital signal at a bit rate of up to approximately 1 gigabit per second.

Claim 49 (New): A method of operating an optical distribution node configured for use in a hybrid fiber/coax network, the method comprising:

receiving analog signals from at least one of a plurality of coaxial cable links;
converting the analog signals into baseband digital signals;
generating status data representing an operational status of the optical distribution node;
converting the baseband digital signals into a serial data streams;
multiplexing the serial data streams and the status data to create a combined digital signal;
transmitting the combined digital signal to a head end via a fiber optic link; and
controlling or monitoring an operation of the optical distribution node based on the status data,

wherein the receiving, converting the analog signals, generating, converting the baseband digital signals, multiplexing, and transmitting are performed by the optical distribution node, and

the controlling or monitoring is performed by the head end.

Claim 50 (New): The method of claim 49, wherein the multiplexing further includes multiplexing framing data to create the combined digital signal.

Claim 51 (New): The method of claim 49, wherein the transmitting further includes transmitting the combined digital signal at a bit rate of up to approximately 5 gigabits per second.

Claim 52 (New): A method of operating a head end configured for use in a hybrid fiber/coax network, the method comprising:

receiving a combined digital signal from an optical distribution node via a fiber optic link, the combined digital signal including status data representing an operational status of the optical distribution node and a baseband digital signal constructed from a first analog signal input to the optical distribution node;

demultiplexing the combined digital signal into the baseband digital signal and the status data;

converting the baseband digital signal into a second analog signal, the second analog signal being a reconstructed signal corresponding to the first analog signal; and

controlling or monitoring an operation of the optical distribution node based on the status data,

wherein the receiving, demultiplexing, converting, and controlling or monitoring are performed by the head end.

Claim 53 (New): The method of claim 52, wherein the demultiplexing further includes demultiplexing the combined digital signal into framing data.

Claim 54 (New): The method of claim 52, wherein the receiving further includes receiving the combined digital signal at a bit rate of up to approximately 5 gigabits per second.

Claim 55 (New): The hybrid fiber/coax network of claim 23, wherein the multiplexer is further configured to multiplex data for bit error rate link performance testing to create the combined digital signal.

Claim 56 (New): The hybrid fiber/coax network of claim 29, wherein the second multiplexer is further configured to multiplex data for bit error rate link performance testing to create the combined digital signal.

Claim 57 (New): The method of claim 37, wherein the multiplexing further includes multiplexing data for bit error rate link performance testing to create the combined digital signal.

Claim 58 (New): The optical distribution node of claim 43, wherein the multiplexer is further configured to multiplex data for bit error rate link performance testing to create the combined digital signal.

Claim 59 (New): The head end of claim 46, wherein the demultiplexer is further configured to demultiplex the combined digital signal into data for bit error rate link performance testing.

Claim 60 (New): The method of claim 49, wherein the multiplexing further includes multiplexing data for bit error rate link performance testing to create the combined digital signal.

Claim 61 (New): The method of claim 52, wherein the demultiplexing further includes demultiplexing the combined digital signal into data for bit error rate link performance testing.

Claim 62 (New): The hybrid fiber/coax network of claim 23, wherein the receiver further includes:

a clock data recovery device configured to receive the combined digital signal from the optical receiver; and

a decode logic unit configured to receive the combined digital signal and a clock signal from the clock data recovery device.

Claim 63 (New): The hybrid fiber/coax network of claim 29, wherein the receiver further includes:

a clock data recovery device configured to receive the combined digital signal from the optical receiver; and

a decode logic unit configured to receive the combined digital signal and a clock signal from the clock data recovery device.

Claim 64 (New): The method of claim 37, further comprising:
inputting the combined digital signal to a clock data recovery device; and
transmitting the combined digital signal and a clock signal from the clock data recovery device to a decode logic unit.

Claim 65 (New): The head end of claim 46, further comprising:
a clock data recovery device configured to receive the combined digital signal from the optical receiver; and
a decode logic unit configured to receive the combined digital signal and a clock signal from the clock data recovery device.

Claim 66 (New): The method of claim 52, further comprising:
inputting the combined digital signal to a clock data recovery device; and
transmitting the combined digital signal and a clock signal from the clock data recovery device to a decode logic unit.

Claim 67 (New): The hybrid fiber/coax network of claim 29, wherein the optical transmitter is configured to transmit the combined digital signal at a bit rate of up to approximately 5 gigabits per second.